

Altera Law Group, LLC**Declaration and Power of Attorney Patent Application
(Design or Utility)**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

HANDOVER-METHOD IN CELLULAR RADIO SYSTEM WITH TWO FREQUENCY BANDS

the specification of which

- ☐ is referred to by Altera reference number on a separate document
☒ is attached hereto
☐ was filed on _____ as application serial no. _____ and or PCT International Application number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information know to me to be material to patentability as defined in 37 C.F.R. §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or 35 U.S.C. §365(b) of any foreign application(s) for patent or inventor's certificate, or 35 U.S.C. §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate of PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)		
Number 981486	Country Finland	Day/Month/Year Filed 26 June 1998
Number	Country	Day/Month/Year Filed
Number	Country	Day/Month/Year Filed

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

Prior Provisional Application(s)	
Serial Number	Day/Month/Year Filing Date
Serial Number	Day/Month/Year Filing Date
Serial Number	Day/Month/Year Filing Date

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s), or under 35 U.S.C. §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

Prior U.S. or International Application(s)		
Serial Number PCT/FI99/00566	Day/Month/Year Filed 24 June 1999	Status (patented, pending, abandoned) Pending
Serial Number	Day/Month/Year Filed	Status (patented, pending, abandoned)
Serial Number	Day/Month/Year Filed	Status (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Power of Attorney

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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I hereby authorize them or others whom they may appoint to act and rely on instructions from and communicate directly with the person/organization who/which first sends this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Altera Law Group, LLC otherwise.

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1. Handover-method in a cellular radio system including base transceiver stations (BTS) and mobile stations (MS), in which cellular radio system at least two frequency bands are used, and wherein each base transceiver station transmits a broadcast intended for all mobile stations in a first frequency range, in which method handover to the second frequency range is started, characterized in that bursts sent by a mobile station (MS) and relating to the handover signaling are measured at the base transceiver station (BTS), the measurement results are compared with a pre-established criterion, and handover is completed only when the criterion is met.

2. Method as defined in claim 1, characterized in that handover is interrupted, when the established criterion is not met, and the communication between mobile station and network is continued on the initial channel, from which the handover started.

3. Method as defined in claim 2, characterized in that the mobile station (MS) is notified of the handover interruption.

4. Method as defined in claim 1, characterized in that the signal level of the mobile station's bursts is measured.

5. Method as defined in claim 1, characterized in that the signal-to-noise ratio of the mobile station's bursts is measured.

6. Method as defined in claim 1, characterized in that a pre-established criterion (K) is transmitted to the base transceiver station in connection with the channel assignment signaling (51).

7. Method as defined in claim 1, characterized in that a pre-established criterion (K) is transmitted to the base transceiver station in an O&M procedure.

8. Method as defined in claim 1, characterized in that on a new channel assigned for the connection the bursts of connection request signalling (25) received from the mobile station are measured at the base transceiver station.

9. Method as defined in claim 1, characterized in that the bursts of link connection set up signaling (32) received from the mobile station are measured at the base transceiver station.

10. Method as defined in claim 1, characterized in that the first frequency range is a frequency range of a lower frequency than the second frequency range.

900 vs 1800 MHz.

- 1 = 11. Handover-method in a cellular radio system including base transceiver stations (BTS) and mobile stations (MS), in which method handover from an initial channel to a target channel is started, characterized in that
bursts transmitted by the mobile station (MS) and relating to the handover signaling are measured at the base transceiver station (BTS),
the measurement results are compared with a pre-established criterion,
and
handover is completed only when the criterion is met.
- 2 = 12. Method as defined in claim 11, characterized in that
the handover is interrupted, when the established criterion is not met, and
the communication between the mobile station and the network is continued on the initial channel, from which handover started.
- 3 = 13. Method as defined in claim 12, characterized in that the mobile station (MS) is notified of the handover interruption.
- 4 = 14. Method as defined in claim 11, characterized in that in
the method the signal level of the mobile station's bursts is measured.
- 5 = 15. Method as-defined in claim 11, characterized in that the signal-to-noise ratio of the mobile station's bursts is measured.
- 6 = 16. Method as defined in claim 11, characterized in that a pre-established criterion (K) is transmitted to the base transceiver station in connection with the channel assignment request signaling (51).
- 7 = 17. Method as defined in claim 11, characterized in that the pre-established criterion (K) is transmitted to the base transceiver station in an O&M procedure.
- 8 } 18. Method as defined in claim 11, characterized in that on the target channel the bursts of the connection request signaling (25) received from the mobile station are measured at the base transceiver station.
- 9 } 19. Method as defined in claim 11, characterized in that the signal of the link connection set up signaling (32) received from the mobile station is measured at the base transceiver station.
20. Mobile communications system including base transceiver stations (BTS) and mobile stations (MS), characterized in that the mobile communications system is adapted
to start a conditional handover and to supply a criterion (K) for the conditional handover to the base transceiver station,
to measure the signal of the mobile station's (MS) handover signaling at the base transceiver station (BTS),

to compare the measurement results with the pre-established criterion (K),
and

to interrupt the handover, when the mobile station signal as a result of the comparison does not meet the pre-established criterion.

21. Base transceiver station including a handover-signaling unit (81) for controlling the handover signaling, c h a r a c t e r i z e d in that the base transceiver station also includes

measuring means (82) for measuring the signal of the handover signalling received from the mobile station (MS) , and

comparison means (83) for comparing the measurement results of the measuring means with the pre-established criterion (K) for continuation of handover, whereby as a result of the comparison a control signal is obtained for the handover-signaling unit (81).

ABSTRACT

Handover in a cellular radio system having several frequency ranges is problematic e.g. from the viewpoint of network capacity utilization. The invention concerns a handover-method, especially in a cellular radio system having at least two frequency ranges, wherein broadcasting is transmitted in a first frequency range and handover to a second frequency range is started. The method according to the invention is characterized in that bursts transmitted by the mobile station (MS) and relating to the handover signaling are measured therein at the base transceiver station (BTS), the measurement results are compared with a pre-established criterion and handover is completed only when the criterion is met.